

REVIEWS.

ART. XIII.—*First and Second Reports of the Commissioners for Inquiring into the State of Large Towns and Populous Districts.* Vol. iii., pp. 682, 298, 380, folio.—London.

Unhealthiness of Towns—its Causes and Remedies. Being a Lecture delivered in the Mechanics' Institute, at Plymouth, by VISCOUNT EBRINGTON, M. P.: p. 48. London: Charles Knight & Co., 1846.

Unhealthiness of Towns—its Causes and Remedies. Being a Lecture delivered at Crosby Hall, London. By WILLIAM AUGUSTUS GUY, M. B. 1845.

Report of the Committee of the Members of the Health of Towns Association on Lord Lincoln's Sewerage, Drainage, &c., Bill: p. 122. London: Charles Knight, 1846.

Report of the Committee on the Expediency of Providing Better Tenements for the Poor, p. 36. Boston, 1846.

LIFE is by no means a constant quantity. It varies both in its fulness, power and intensity, and in its duration. These are no new discoveries. They have been known to the world from its earliest period. Although the natural term of human existence on earth seems to be fixed at three score and ten, yet there are comparatively few that reach it. And it seems to be rather the limit which the favoured few may reach, than the period which all may expect to fulfil. From the first breath to the greatest age, there is an incessant but varying uncertainty of life; and no child, youth, or man, is secure of his earthly being. Sickness hovers over man in all his stages, and death comes at any period; so that the average duration of life in any country or class of men is very materially reduced, and rarely rises much beyond half the allotted period.

Sickness and early death seem to be looked upon not only as the common, but necessary, lot of humanity, and as an inherent condition of our earthly existence, growing, by the order of nature, out of our organization, or inseparable from the earth we inhabit, or from the atmosphere we breathe. Taking with life these conditions of sickness, weakness, and uncertainty of tenure, and considering these as arising from causes which are established in the creation of man and the world, it has hardly been a question, whether the causes might not be removed, and their evil consequences avoided. Until the leopard could change his spots, and the Ethiopian his skin, man would not think to change this sad condition of his creation, and escape his liability to disease and early death; and, therefore, although the world has devoted sufficient attention to the healing of diseases, it has paid very little regard to their prevention.

Yet, notwithstanding it was firmly believed that disease and death at uncertain periods are the common and inevitable lot, it has occurred to some, that these evils were unequally distributed, that among some people and in some localities, sickness was much more prevalent, and childhood and youth sank much more frequently than in other localities, and among

other people. Some have observed, that many of the poor were peculiarly afflicted with diseases, and consequently their poverty came upon and remained with them. It has been generally supposed, that their deficiency of health was the source of their deficiency of property; and not that their want of means of living was the cause of their want of physical strength and comfort.

For a long time, these facts have been noticed by a few philanthropists, who, some years ago, began to call public attention to the great prevalence of fever in the districts inhabited principally by the poor. They suggested farther inquiry into the condition of those districts, in order to learn whether there was any difference between the localities, the streets, the houses, or the manner of life of those people where diseases prevailed more, and of those who were comparatively exempted from them.

It then became a question whether the fevers and other fatal diseases, which ravaged more fearfully in some places and among some classes than others, might not be owing to removable causes. Certainly as there was a wide difference between the external conditions and circumstances of the afflicted and the exempted, it was reasonable to ask, whether this outward difference might not be lessened and the diseases thereby diminished.

In the year 1838, the Poor Laws Commissioners of England presented, among matters which had been brought to their official observation, some reports which they had received from Drs. Arnott and James Phillips, Ray, and J. Southwood Smith, on the causes of fever existing in London, and also on the prevalence and fatality of disease among the poor in some of the districts of the metropolis. These reports were the record of the matters that these men had seen in course of their professional duty, and of what they had discovered, by private and personal inquiry.

In the next year, Dr. Smith made another report on the prevalence of fever in twenty metropolitan unions and parishes, during the year ending in March 1838.

These inquiries were still farther pursued by a committee of the House of Commons in the year 1840, and the result of their investigation confirmed the statements of the committee of Poor Laws Commissioners previously made.

In the same year, the ministry, by order of the Queen, directed the Poor Laws Commissioners "to cause inquiry to be made as to the extent to which the causes of disease stated in their fourth annual report to prevail among the labouring classes, both in London and in other parts of England and Wales. And they were furthermore directed to prepare a report of the result of such inquiry, which might be laid before the House of Lords."

The Poor Laws Commissioners delegated the power and responsibility of this whole inquiry to Edwin Chadwick, Esq., their able and indefatigable Secretary, who called to his aid men in various cities, towns and districts of the kingdom.

In 1842, Mr. Chadwick published in one volume his astonishing report on the sanitary condition of the labouring classes, which showed such a state of degradation and wretchedness among the poor of many of the towns and districts, as was not suspected by those who only saw these classes in the streets. Sickness was found not only to be more prevalent, but much more fatal, and life was shown of shorter duration among the poor than among the prosperous classes.

Connected with these ills of the body, there were almost universally

found what might be supposed to be causes of disease. The poor lived in narrow streets, in closed courts, and in alleys. They suffered for want of drainage, both of their streets and their houses. They had little or no means of removing their own house and personal offal. They were in want of ventilation, light, and pure water. These streets or courts were often wet and muddy, and being the receptacles of all the filth and waste of their bodies and their houses, often sent forth most offensive emanations, and perhaps the miasmatic cause of disease.

There was discovered a remarkable and very general connection between the prevalence of disease and the condition of the dwellings and of the streets. In some sanitary maps, which were prepared, representing the condition of the districts and the health of the inhabitants, those streets and courts, which are marked as filthy and undrained, are also marked as the places where the cholera prevailed some years ago, and where fever and other epidemic diseases now prevail most abundantly; and it is not less observable, that in these foul and unhealthy districts are the habitations of the poor.

Mr. Chadwick prepared also a supplementary report upon Interment in Towns. This we reviewed in Vol. IX., p. 131, of this Journal, in 1845. To this our readers are again referred for some statements relative to the condition of the labouring poor of England and Wales.

Subsequently a large commission, consisting of thirteen persons, was appointed by her Majesty the Queen "to inquire into the present state of large and populous districts," with reference to the causes of disease, and the best methods of increasing and preserving the health of the inhabitants. They were directed to inquire in regard to the drainage of lands and buildings, the size, condition of dwellings, the supplies of air and of water, and finally what amendment of the laws and usages could be adopted for the improvement of the health and increase of the comfort of the people, and for the convenience and safety of their dwellings.

The men composing this commission were among the ablest in the kingdom. Nobles, and philosophers, and philanthropists were joined together, and lent their aid in the work. The Duke of Buccleuch was at the head of the board, and Lord Lincoln, Dr. Lyon Playfair, Sir George Graham, and Dr. D. B. Reid were among the members. Here were character and talent sufficient to ensure a faithful examination of any subject, however difficult, and to go through the work, however laborious or disgusting. These commissioners were empowered to command the aid of other men, and to make personal examination, either by themselves or by deputy, of the condition of houses, streets, courts, shops, wherever the poor dwelt or worked, or wherever disease might be suspected to originate. They summoned to their aid men who, from their profession, their habits, or taste, were the most competent to give the desired information. For this purpose, physicians in active practice, philanthropists who were in the habit of visiting the poor, engineers who were employed in the survey of streets, superintendents of water-works of various cities, superintendents of streets, of sewers, and of paving, overseers of buildings occupied by the poor, architects and contractors for building drains, water-works, houses, and for paving, were severally examined, and some of them have given reports of great length and interest, in regard to the matters which had come especially under their observation. The first report, in one large folio volume, was presented to her Majesty in June, 1844, and printed in the same year. The second report, in two large folio volumes, was presented to both Houses of Parliament in Feb. 1845, and printed by their order.

The investigation commenced with the condition of the street and house drainage of the metropolitan districts; afterwards the inquiry was extended to fifty of the principal manufacturing and commercial towns of the kingdom, and where the rate of mortality appears to be the highest; "each of these towns was visited by one of the commissioners, who examined, on the spot, the general condition of the towns, and of the most unhealthy districts, and making personal inquiries of the inhabitants."

A circular containing sixty-two questions was sent to responsible and trustworthy persons in each of these cities and towns, and minute and elaborate answers requested to each.

These questions relate to a great many topics, to the position of the town or district, its relation to the neighbouring country, its liability to overflow, the soil, and its capability of drainage, to the state, regulation, and condition of drainage, both of houses and streets, to the supply of privies, and to the prevalence of cess pools.

To the arrangement of sewers, and their condition, form, structure, efficiency of cleansing, and their extent in courts, alleys, &c.

To the work of scavengers, the method of carrying off the dust, waste, offal of houses. Use made of refuse. Authority for cleaning.

Site, structure, size, ventilation, and windows of houses of the poor; number of families in a house; size and condition of rooms, and number of persons in them; state of the air in them; how warmed in winter; cellar dwellings.

Arrangement of streets, wide or narrow, straight or curved, and how paved. Courts, whether closed at one or both ends.

School rooms, site, size, location, and ventilation.

Lodging houses. Public walks—play-grounds. Baths.

Water,—how supplied; what is its character, distribution? What portion of houses do not have it; cost; quantity.

Sanitary condition of the towns; of the worst parts; in parts where the rate of mortality is the highest; where fever or epidemics are most prevalent.

Average duration and amount of sickness in working classes.

Losses of rents and taxes of poor from sickness and want of employment.

Public and private aid given to the poor in unhealthy districts.

To these questions the committee received ready and proper answers from the authorities of the fifty towns to whom they were sent; and the general result of the inquiry is, that none of these cities or towns are perfectly drained and supplied with water, and many of them are very badly drained. In most of them the narrow streets, and the courts, and by-places have no means of under-ground drainage. None is supplied completely with water in all the streets and houses; and many have no other supply than that which is obtained from wells or pumps, or drawn in casks from some neighbouring river or stream; and, in almost every place, the poor are inadequately or expensively supplied with this necessary of life.

All the required information seems to be freely and abundantly given, and in very few instances was there manifested any reluctance to answer the questions. Beside the authorities of the towns and cities, there were many others who voluntarily offered aid. Indeed, there is developed a great, a growing interest in this subject in many of the cities of England.

The Health of Towns Association embraces a large portion of the talent and active benevolence of the kingdom. These of every grade seem to be

among its members. The noble and the learned, the philanthropist and the business men are engaged in its plans, and are ready to aid in its objects and its investigations. The Marquis of Normandy is chairman, the Bishops of St. Davids, Oxford, and Norwich, Lords Morpeth, Ebrington, Ashley, and John Manners, Sir Edward B. Lytton, Benjamin D'Israeli, Dr. J. Southwood Smith, and Wm. A. Guy, Sir James Clark, and others of the highest character, are on the committee, which includes a list of more than fifty names of men well known for their station in the government, the church, in literature, and science. These names are a guaranty for the earnestness of their purpose, the magnitude and importance of their undertaking, the greatness and extent of the evils to be removed, and the blessings to be obtained by their co-operation.

The object of this association is stated in their code and regulation, "to diffuse among the people the valuable information elicited by recent inquiries, and the advancement of science, as to the physical and moral evils that result from the present defective sewerage, drainage, supply of water, air, and light, and construction of dwelling houses." "To facilitate legislative enactments and their application, by the diffusion of sanitary information bearing on the several points."

"To encourage the establishment of branch associations, with a view to the local benefit that may thence arise, and a more extended field of usefulness."

This association holds annual meetings in various places, obtains and diffuses information, encourages investigation and plans of improvement, and has printed several reports and addresses upon this subject. Among others, two on the unhealthiness of towns, its causes and remedies, the titles of which we have placed at the head of this article, and one by Mr. R. D. Grainger. Some journals, as the *Health of Towns Advocate*, in Liverpool, are devoted to this subject, and corroborate the reports of the associations. Even the political journals lend their aid. We find, in the *London Times*, articles upon the state of the poor, of the low health, and short lives of town population. Others are engaged in this matter. The *People's* and *Howitt's Journals*, contain many valuable and instructive articles upon the various evils of the present condition of streets, houses, and people in cities, and the means of removal.

The *Journals of the London Statistical Society* contain some very elaborate and interesting reports of investigation, made by some of its members, into the social and domestic condition of the poor, their dwellings, health and duration of life.

With this evidence of general interest on this subject, we find no difficulty in believing that the committee of investigation receive every aid and every facility to obtain their desired information.

From the labours of the National Sanitary Commission, of these public associations, and of interested individuals, there has been elicited a mass of information in regard to the poor—to their privations, and sufferings, and their want of health, and waste of life. The veil that wrapt in a mystery the causes of disease has been torn away, and the true reason of the prevalence of fevers and contagious diseases, has been revealed to the world.

"The result of these various inquiries has been the collection of a body of evidence of the highest order, relative both to the extent and intensity of the evils in question, and to the proper legislative remedies; and the publication of this evidence will, in the opinion of your committee, form an

era in the history of legislation, there being no other instance known to them in which evils of so much magnitude have been proved to be so generally prevalent; in which the search after efficient and permanent remedies has been attended with a success so unquestionable and so unquestioned; in which the mode of giving practical effect to those remedies has been so satisfactorily shown; and, consequently, in which so much has been done at once to guide the legislature, and to instruct and prepare the public mind for cordial co-operation with it."—*Report of the Committee.*

A bill was introduced into Parliament, intended to remove the existing evils, and to prevent their future occurrence. This bill provides, that the whole of any city or town—both its dense portions, and its scattered suburbs, should, as respects drainage, sewers, supply of water, cleansing, and paving, be placed under our authority; and these several matters, water supply, sewers, streets and paving should be under the control of one and the same board of public officers; that one public inspector overwatch all these matters, which are usually under separate authorities, and guard the public interests; that previous to any water-works, sewers, or drains being established, or streets laid out or paved, the whole area should be surveyed, and plans drawn of the whole, by competent engineers; and thus all the works would be arranged and established according to the best plan for their successful operation. The bill further provides that such nuisances, as now affect the general health, should be removed by the public authorities, and that some public officer be authorized to compel the due cleansing of the streets, and courts, and houses, by the removal of the offal and the proper drainage; and lastly, that skilful physicians be appointed in various districts as medical officers, with power to search out and remove the cause of diseases, and particularly of those of the epidemic classes.

This bill, if carried into execution, would, without doubt, very materially diminish the amount of sickness, especially among the poor.

That there were evils of immense magnitude to be removed, and that there was a need of some measure of this kind to remove them, will not be questioned by those who read the testimony that is presented in the various reports, from the most responsible witnesses.

These evils are principally found in the districts occupied by the poor. Those who go through the main thoroughfares of the cities, the streets where the principal business is transacted, where merchants congregate or manufacturers labour, and the more elegant and airy streets, where are the houses of the wealthy or the prosperous, can hardly conceive of the condition of the by-streets, lanes, alleys, and courts,—places concealed generally from public view,—where the poor have their habitations. Dr. Smith speaks "of uncovered sewers, stagnant ditches and ponds, gutters always full of putrefying matter, night-men's yards, and privies, the soil of which lies openly exposed, and is seldom or never removed. It is not possible for any language to convey an adequate conception of the poisonous condition, in which large portions of both these districts always remain, winter and summer, in dry and rainy seasons, from the masses of putrefying matter, which are allowed to accumulate."

Fever is the principal disorder to which the poor are subject in these unhealthy quarters. Some of the districts have, from this circumstance, received the appellation of "fever districts." Some crowded courts, and even some crowded houses, are never free from this disease. Some whole families are attacked by it, and many of them swept away. One physician

states, that in one house he attended a family of thirteen persons, of whom twelve had typhus fever, laying on the floor closely together. In another house he attended fourteen patients, who had only two beds for their accommodation, most of them lying on the floor.

Owing to the increasing filthiness of these streets, and impurity of the air, fever has changed its character for the worse. It is now more fatal and less manageable than formerly. Dr. Smith says that this disease was of an inflammatory nature, and often required a treatment by blood-letting, and was aggravated by stimulants, but lately its nature has ceased to be inflammatory, and no treatment that would reduce the energies of the system, is required, but rather stimulants, such as wine, brandy, &c., are needed in most cases that require any treatment.

It is an admitted principle, that sickness is more frequently generated, and mortality increased in towns, where many people are gathered into a small space, and especially in those parts, where they are most densely crowded together, and the amount of disease and death are in very near proportion to the compactness of the crowd.

With the increase of population there must be necessarily an increase of waste matter, both of animal and vegetable origin, either in the houses or in the streets. The rapid decomposition of this refuse, throws out offensive and injurious gases, which produce disease in those who live within their influence.

If this refuse is removed as fast as it is produced, the bad consequences will be diminished, and in many cases nearly prevented. But this requires the most efficient cleansing of the houses and streets by scavengers and by drainage, to remove both the solid and liquid matter.

In consequence of the high price of land in cities, and the cost of building, the poor cannot afford to occupy much ground or large houses. They live in narrow streets and courts, in small houses, and often in crowded rooms. These streets are planned, and dwellings built without regard to the supply of air, or the means of cleansing, or to other requisites of health. They suffer, therefore, from want of both external and internal ventilation.

The respiration of the inhabitants of crowded rooms, and the emanations that are necessarily thrown off from the decomposition of their great quantity of waste matter must corrupt the atmosphere, and increase the necessity of internal ventilation and of cleansing, while the narrowness of their streets and their closed courts, prevent the free circulation of the air, and the frequent, and in some places, the general neglect of cleansing and drainage, leave their grounds and premises in the most filthy and offensive condition.

From the report of Dr. Duncan, we learn that more than two-thirds of the population of the parish of Liverpool, 160,000 out of 223,054 belong to the labouring classes, and that a large portion of these live in courts or alleys. These courts are very narrow, varying from 9 to 15 feet in width, surrounded by houses three stories high. There are 1982 of these courts, of which 629 are closed at both ends, communicating with the outer street only by a narrow passage, doorway, or arch under the houses; 875 are open only at one end, and 498 are open at both ends. There are 10,692 houses and 55,534 inhabitants in these narrow courts.

The houses are built back to back, having no outlet except in front, and surrounded by other houses on three sides. Each house contains three small rooms about 10 or 11 feet square, and in these narrow streets, with no access for fresh air nor egress for the foul air either from the houses or

the courts, there cannot be any sufficient ventilation, to support the respiration of the inhabitants.

These courts and houses built back to back, though more common in Liverpool than in most other towns, are yet sufficiently common in other parts of the kingdom. In Birmingham 49,000 of the labouring classes are estimated to reside in such courts.

In Preston one court "is closed at both ends with privies." Other courts and streets are entered by passages under houses, and others are closed at one end by walls. In Nottingham, Mr. Hawksley says, "the houses are chiefly erected side by side and back to back." "One apartment on the plan and three in elevation, stair-cases narrow, dark and unventilated, having pantries and coal places beneath the timbers of the stairs. The area of the living room is generally about 120 feet and its height about eight feet, and the cubic contents after deduction of space occupied by the chimney breast is therefore about 900 feet. In this apartment five persons on an average take their meals, and during the time they may be at home together dwell, thus affording only 180 cubic feet of space to each individual."—(*First Report of Commissioners.*)

Most of the houses of the labouring classes in Nottingham are built either in very narrow streets or alleys, but more frequently in courts, "the entrance to which is through a tunnel 30 to 36 inches wide and 25 to 30 feet long and 3 feet high," and this being the only outlet or inlet, no ventilation is possible, and the light of the sun very nearly excluded.

In all the towns of England as in Liverpool, the labouring classes, the poor, constitute a large proportion of the population, living mostly in narrow streets, in courts, or in cellars.

These reports describe very minutely the condition of the streets and dwellings of the poor, and reveal such a state of things as few, beside those who go to them professionally, suppose to exist in and about the abodes of men. In Liverpool some of the streets in which the poor dwell are 30 and others only 15 feet wide, and the whole average about 24 feet. The 243 streets, inhabited by the labouring population of Liverpool, measure about 20 miles in length.

Many of these districts have no sewer nor other means of carrying off the surface water that rains upon them, or the waste water of the houses, or of removing the waste and offal of their bodies or of the houses.

Only 56 of the streets, which measure about 4 miles, are provided with sewers, in all the others, the drainage, if it exist at all, is upon the surface. The courts are equally unprovided with underground drains; there are hundreds of these in Liverpool that have no sewers. Many of them have open sewers or ditches running through the middle of the street or court. The reporter says, "the sewers are not cleaned except by the rain. The surface of the streets are cleaned by hand, but so carelessly, that in some quarters they are generally filthy, and, at certain seasons, almost impassable." The public authorities do not cleanse the courts and alleys in which carts cannot enter; and these being left to their inhabitants, who are mostly poor, are seldom cleaned at all except by the rains; and one witness says, "I never hail anything with greater delight than I do a violent tempest accompanied with heavy rain, for these are the only scavengers that thousands have had to cleanse away the impurities and the filth in which they live."

Dr. Smith says, "At the back of Ray street, Clerkenwell, London, which

is densely populated, a most offensive and open drain, a part of Fleet ditch, passes by the backs of the houses." "I have noticed similar nuisances in Lock's-fields, Bermondsey, and Rotherhithe. In many places the refuse water that has been employed for the purposes of cooking and cleansing the houses, flows through the gully holes into the kennels in the street, where it frequently remains stationary, producing in warm weather the most oppressive exhalations."

"Puadersoa's Gardens, London, is a long narrow street, in the centre of which is an open sunk gutter, in which filth of every kind is allowed to accumulate and putrefy. A mud bank on each side commonly keeps the contents of this gutter in their situation, but sometimes, especially in wet weather, the gutter overflows, its contents are poured into neighbouring houses, and the street is rendered impassable. The privies are close upon the foot-path of the street, being separated from it only by a paling of wood. The street is wholly without drainage. Fever constantly breaks out in it and extends from house to house. An open filthy ditch encircles Lambs' Fields, London. This ditch is 8 to 10 feet wide in some parts "where the privies of all the houses of North street open. These privies are completely uncovered, and the soil from them is allowed to accumulate in the open ditch. Nothing can be conceived more disgusting than the appearance of this ditch for 300 or 400 feet; the odour of the effluvia from it is at this moment most offensive." "Lambs' Fields is the fruitful source of fever to the houses which immediately surround it, and to the small streets which branch from it: from several of the streets fever is never absent." In Field Lane, London, the courts are described as low and unventilated, leading to back yards and houses. "These yards are covered with refuse of rotten vegetables, human and other excrement, and other matters in a state of putrefaction. In some, pigs are kept. The cesspools are imperfectly covered, and the privies in a most filthy condition."—(*First Report of Commissioners.*)

In York, the sewerage, which is generally insufficient, is almost wanting in the back courts and streets. Throughout the whole city there is reasonable complaint of want of drainage, and nuisances abound and become very offensive from not being carried away. "The slaughter-houses, pigsties, dung-heaps in the heart of the towns are represented in several instances as pouring their fetid contents into open drains," and give forth very offensive effluvia. Many of the houses are damp for want of drainage.

It is impossible to give more than a general description of the streets in which the poor live in many towns of England, and quote a few of the manifold illustrations from the books before us. Filthy, offensive, and unhealthy as these streets and courts are, the dwellings are no better; if possible, they are worse. Most of these houses being built back to back, and side to side, leave only the front open to the external air. As this front generally opens into a narrow street with but a few feet between it and the opposite house, and as the grounds of the intervening space are often covered with rotteness and filth, and there is no free opening at either end of the courts, they have very little opportunity of receiving pure air. There is then a deficiency of both external and internal ventilation.

These dwellings must not only receive a deficient supply of air, but that little must be tainted; and such a thing as pure air in these filthy streets and courts can hardly be known.

Such a thing as special ventilation of the houses of the poor is seldom or never found; and in consequence of the tax upon windows, there are as few

as possible. Not even an aperture can be left in the external wall for ventilation without subjecting the house to an additional window tax. If "it were a hole in the wall to let off the impure air," and "if glazed, the tax-gatherer would most decidedly charge for a window."

The enormous debt of Great Britain may create a seeming necessity for this vigilance of taxation,—which denies to the poor even an outlet for the foul air of his den, and an inlet of fresh air from abroad,—for the payment of its interest. The principal of that debt was created for the support of armies and for the destruction of human life, and the same blight of life follows the interest. For the poor feel compelled to reduce their windows, their inlets of light and of air, to the lowest possible point; and thus wanting sufficiency of air, they suffer in vigour and in health, and, consequently, their life is impaired and ultimately shortened. The weight of the tax defeats its own purpose; for it not only diminishes the number of windows which might otherwise be taxed, but it so diminishes the labourer's strength and his productive power, that he is thereby rendered unable to earn the means of paying other taxes that might have come upon him.

Where the streets or courts are not supplied with sewers or other means of underground drainage, there can be no proper house drainage. It will not be surprising that in Ashton-under-Lyne, there are "3132 houses without proper house drains." All the waste water of these, and of similarly undrained houses, is thus allowed to run into the street, and then either to pass slowly away; or more commonly it remains a stagnant pool, and soaks into the ground, and fills it with its foulness, or it is evaporated from the surface, sending back into the air its own poisonous and corrupting effluvia.

Of course the poor, who can afford no room for yards and the least possible room for streets, cannot afford to live in large houses. The houses in the courts of Liverpool, are generally built three stories in height, besides the cellars, with only one room on each story. These rooms are about ten or eleven feet square. In White Chapel, London, Mr. Liddle, a medical officer, states, that "about twelve feet by eight, would give a fair average size of the floors of the rooms; the ceilings rarely exceed eight feet in height." All the evidence given in these reports, corroborates the statements which we have here made, and show that in other places, as well as in Liverpool, the poor live in very narrow dwellings, and these are often so overcrowded as to be exceedingly disagreeable, as well as unhealthful. A large proportion of the families have each only one room. In the parish of St. George's, Hanover Square, London, 1465 families occupied 2195 rooms, and 2500 beds; 929 families had each one bed, and 638 had each two beds. In some houses of the parish of St. Denis, York, 8 to 11 persons, and in another 6 to 8 slept in one room; and out of 2195 families, more than one quarter, "26 per cent. had only one room for all purposes." In one district of Preston, 2400 persons slept in 352 beds, and among these 336 slept in 34 beds, 140 in 28 beds, 78 in 13 beds, 21 in 3 beds, and 3 in 1 bed. In Liverpool, Mr. Holme states, that, "it is well known that, in houses not exceeding twelve feet square, with one bed room, and a low attic, there are often found 20 to 30 persons huddled together." "I found in one bed-room twenty persons, nearly all adults, and of both sexes." In Greenock "it is not unusual to see 10 or 12 persons sleeping in a room, not as many feet square." In the Sanitary Report on the condition of the Labouring Classes, much evidence is given in regard to the domestic condition of the poor, not only in the city, but in the rural and mining districts.

One room in the northern counties is described. It was eighteen feet long, and fifteen feet wide, its height is not stated. Here were 14 beds, each was intended for two persons, "but they might be made to receive three men each, and in case of need, a boy might lay across at their feet." "There was no opening to let out the foul air, yet 39 to 40 persons might have slept there." "An apartment ten or twelve feet square, more frequently a cellar of the same dimensions, is occupied by twelve or fourteen beings."

The cellars which are inhabited as dwelling places are more crowded, and in a worse condition, as to ventilation and cleanliness, than the rooms above the ground. These are the most abundant in Liverpool, yet they are to be found in other towns. There are in Liverpool, "6294 inhabited cellars containing 20,168 inhabitants." The cellar population constitute about 20 per cent. of the working classes in Liverpool, $11\frac{1}{2}$ per cent. in Manchester, 8 per cent. in Salford, in Nottingham less than either, and none in Birmingham.

They are generally ten to twelve feet square, and some not six feet high; usually they are provided with a paved floor, but often with no floor but the ground. Many have no windows, and no means of admission of either light or air except the door, the top of which is on a level with the street. Some have another cellar back of this, which has no opening whatever, except a door leading from the front subterranean apartment. This back room or cavern is occupied as a sleeping apartment.

Lodging houses are very common in London, and in other cities and large towns of England and Scotland. These are mainly intended to receive, but not to accommodate, a great many poor vagabonds, who have no house or home, and wandering about the streets, gather in there for the night, and find a temporary shelter. "In every room in such houses, with the exception of the kitchen, the floor is usually covered with bedsteads, each of which receives as many as can be crowded into it; and this often without distinction of sex, or regard to decency." The cellars in Liverpool, which are used for the same purpose, are often worse crowded than even the houses. The floor, "often the bare earth," is covered with lodgers, "until scarcely a single available inch of space is left unoccupied." In some cellars not larger than sixteen feet square, and eight feet high—containing 2100 cubic feet, 30 adult persons are sometimes packed, without means of ventilation.

In the lodging houses, there is neither regard paid to the necessities of respiration, nor attention to the common decencies of life; men and women here herd together in the same room and often in the same bed. "I found in one bed-room about twenty persons, nearly all adults, and of both sexes." Among the occupants were several young females, of eighteen and twenty years of age, who when dressed, had the appearance of decency." In many of these houses, it is intended to have the married and single rooms, and the male and female rooms separate; but, as we see, this is often, perhaps generally, disregarded. In Tranent in Scotland, "men, women and children, sleep in the same apartment." The same occurs in some of the lodging houses of Newcastle, "both sexes being crowded together." In Macclesfield, in rooms of sixteen or eighteen square yards, "are five or six beds, and three individuals in a bed married and single, male and female, to all appearance indiscriminately lodged." In Manchester the same story is told by Dr. Howard, of the "crowded state of the beds filled promiscuously with men, women, and children."

The same want of room is found in the workshops as in the dwelling houses of England. The tailors of London work in very crowded rooms, and Dr. Smith says, "the description here given of one occupation is applicable to many. Eighty journeymen tailors worked in a room with less than a thousand feet of floor, giving not much more than a yard and a quarter room to sit and work in. They were obliged to sit close together, knee to knee." Dr. Guy says, that "the London artisans work in shops heated to a high temperature, and without ventilation, breathing "a foul and stagnant atmosphere, and so crowded, that the only practicable limit to the number is the want of more standing or sitting room."

Situated as the houses are, most of these being built back to back, with neither side yard nor back yard, the inhabitants of course have no place to deposit their waste and offal, except in the street or court in front. They have no place for privies but in front, no opportunity for that privacy which natural delicacy and common decency require.

A great many houses and cellars have no privies, and their inhabitants can only use the street or court, or using vessels within their rooms, empty them into the open ground in front. The whole cellar population of Liverpool have no place to deposit their refuse matter. "In Manchester, of 6951 houses inspected, 2221 were without privies, so that in this respect, Manchester is little better off than Liverpool."

Out of 1200 houses situated on the open street, 304 had no privy. Most of the larger courts have two privies, which are of course in front of the houses, in Liverpool. Back Queen Street, in Preston, has a "row of privies about 300 feet long. The street is only about six feet wide, the doors of the houses and the doors of the privies are within two yards of each other," and "the space between the privies is filled with all imaginable filth." In some parts of Charlton-upon-Medlock, twenty families use one public privy. In some ranges of cottages lately built in York, one privy is provided for from eight to twelve and even fourteen families, but some houses have each a privy. The privies of the courts are always in front, and if more than one, they are usually in clusters, "with one dirt-pit to the whole."

These vaults, or soil-holes, are often open and exposed to public view, and give forth their disgusting effluvia without obstruction. Sometimes they are filled to the overflowing, and "flood back courts." In London, "the privies of all the houses in North Street open into a ditch," and there "the soil is allowed to accumulate."

These common privies are usually the most disgustingly filthy, and suffered to be in a wretchedly dilapidated condition. The doors are sometimes wanting, and then all possible opportunity of privacy is taken away.

Many of these soil-holes are but rarely emptied, and the accumulated excrement is allowed to remain for long periods undisturbed. It is carried in wheel-barrow and baskets from the courts, and the narrowest streets, which carts cannot enter, "and much of it spilt during the tedious operation." One case is stated, where this ordure is carried in baskets and emptied into an open gutter in the street.

Some families in the neighbourhood of Field Lane, London, having no privy nor cesspool, throw their excrements into a back yard where they remain for months. Others have cesspools without drains, and there "the excrement runs into courts or streets, where they remain until the rain washes them away."

These privies in the narrow streets and courts are necessarily close upon the houses; sometimes the vault is separated from a house or cellar only by a porous wall, through which the liquid can pass and trickle down the apartment walls of the inhabited room. In Charlton-upon-Medlock, the walls of some "dwelling houses are constantly wet with this fetid fluid, which has filtered through and poisoned the air."

With all these means of corruption, and with so little means of purification, the air both in the street and court and in the house must be foul and unhealthful.

The crowded population of the houses must corrupt the air within them, and create the necessity of frequent supply of the pure element, but the narrow and infrequent windows, even when open, must afford little opportunity for the egress of foul air from within, and the ingress of the pure air from abroad; and even if these were a sufficient aperture for this passage, the atmosphere of the streets and courts is so corrupted, that it is not very much better than the internal air. All the witnesses speak of the foulness and oppressive nature of the air of these streets and dwellings. Mr. Toyabee, a surgeon of London, says, he is obliged to open the windows for his own comfort, when he makes his professional visits in these houses. and Mr. Holme says, that "the atmosphere of some lodging houses is poisonous." Dr. Smith says, that in visiting patients in these houses, he finds the air so foul, that he stays no longer in the room than necessary to make the examination, and then he goes to the door to write his prescription, in the less foul air of the street or court.

The naturally expected consequences of this state of things are found in these dwellings and streets. The causes before stated act partly by inducing specific disease and partly by deteriorating the general health of the inhabitants, in such a way as to render them more prone to all diseases. Beside this, the malaria of these localities and houses disarm the constitution of its power of resisting disease, so that the cases of sickness are not only more frequent among the inhabitants of these foul localities, but they are much less manageable, and are more often fatal, than in better and purer districts.

The sanitary maps of some of the towns show that the filthy and crowded population, and fever and other epidemic diseases exist in the same locality; and where there is dirt, defective drainage, want of pure air, there are and must be fever and other diseases. Dr. Smith designates certain parts of London as "fever districts," "from which fever is never absent." The streets, courts, alleys, and houses, in which fever first breaks out and in which it becomes most prevalent and fatal, are invariably those in the immediate neighbourhood of uncovered sewers, stagnant ditches and ponds, gutters always full of putrefying matter, nightmen's yards, and privies, the soil of which lies openly exposed, and is seldom or never removed. In Punderson's Gardens, before described, "fever constantly breaks out and extends from house to house." And Lambs' Fields is a fruitful source of fever, both to the dwellers there, and to the inhabitants of the neighbouring streets.

Dr. Duncan shows, that the common fever of England, "including all varieties, typhus, synochus, low adynamic fever, brain fever, nervous fever, &c., is the characteristic disease of the poor in Liverpool."

In the uncleaned and crowded streets and courts of Bethnal Green, "the regular recurrent diseases are fever cases, inflammatory affections, and derangements of the intestinal canal."

There are open ditches or drains in some streets of Clerkenwell, Bermondsey and Rotherhithe, London, into which all the refuse waste of the houses flows, and "in summer the stench is intolerable." Dr. Aldis says he is "called to attend more cases of fever there than in any other part of the district," and worse than all, "the epidemics, continued fever, and even small-pox are increasing."

A strict comparison of the various parts of Liverpool show how much fever is connected with the condition of the people. In Vauxhall ward, where 50 per cent. of the population lived in courts, and cellars, the cases of fever were 1 in 29 of the whole people, while in Rodney street and Abercrombie ward, with only 22 per cent. in courts and cellars, the cases of fever were only 1 in 229 of the people. There are 35 per cent. more cases of fever among the cellar population, than among the labouring population of the whole town of Liverpool. That is, for every 100 cases of fever that occur among a definite number of people living above ground there are 135 cases among the same number living in cellars.

There is much more fever in the damp than in the dry cellars. In seven wards, where 43 per cent. of the cellars are damp, there is one case of fever to every 41 inhabitants, and two other wards, of which only 19 per cent. of the cellars are damp, the cases of fever were only 1 in 239 of the residents.

Fever seems to follow density of population; there were only 21 square yards of ground to each inhabitant in the seven most sickly wards, and 59 to each one in the most healthy wards.

Lace street gives only four yards of ground to a person, and one case of fever to every ten persons. "Next to Lace street, in all that is abominable ranks North street, which has seven square yards to each inhabitant." No privies to more than a fourth part of the houses. "Nothing can exceed the filth of some of the courts," and here the fever patients were one in seven of the inhabitants. One of the Liverpool courts is so densely peopled as to allow only $1\frac{1}{2}$ square yards to a person, and nearly one-half of these were sick with fever, and some with other diseases, in course of a single year.

The city of York is situated on uneven ground, part of it is low, damp, and badly drained. In the former, adjoining the west bank of the river Foss, with an average altitude of 29 feet, 2.2 per cent. of the members of the Benefit Society were sick and disabled from work on an average of 15.29 weeks each; while in some other streets, 53 feet in altitude, and comparatively well paved and drained, only 1.6 per cent. were sick, and kept from work only 5.37 weeks each on an average.

Scrofula is very common in these pestiferous abodes of the poor, and causes a great increase of mortality in the crowded and malarious districts. Foul air is one of the most efficient causes of this disease. In the Northward school, scrofula was very prevalent and fatal among its 600 pupils. The air was foul. But "ventilation was applied by Dr. Arnott, and scrofula soon after disappeared." The families in the crowded houses, and workmen in crowded shops suffer from this disorder. Dr. Aldis finds "glandular swellings, scrofulous affections of different parts of the body, and scrofulous ophthalmia" in such places, more than in others.

Tuberculous disorders, and especially consumption, prevail much in these crowded districts. Dr. Clark says, that the respiration of impure air is one of the most powerful causes of tuberculous disease. And the examination of the health of those who breathe the corrupted air of these districts and houses, confirms this opinion.

According to the opinion of Dr. Smith, "no one who lives in or near a malarial district, is ever for a single hour free from some disease of the digestive organs." Consequently there must be a great amount of indigestion and disorder of the nutritive organs in various forms, and the body is thereby so much enfeebled as often to be unable to bear the atmospheric changes with impunity or resist other causes of disease.

From these abundant causes of prevalent and unmanageable sickness, we should expect a high rate of mortality; the poor seem not only to have a lower degree of life, diminished strength for labour, and less power to resist causes of disease, but a diminished duration of life; so that the sum of their vitality is less than that which people in more favourable circumstances enjoy. This increased harden of death first falls upon the children of the poor. These children are less subject to continued fever than adults, yet they are more liable than the children of the higher classes to exanthematous fever, scarlet fever, small-pox, measles, &c., "and the poisonous condition of the districts, renders the diseases fearfully mortal." Out of the same number of births in the various wards of Nottingham, for every 100 that die in Park ward, the cleanest, and inhabited by the most prosperous people, 143 die in St. Ann's ward, and 152 in Byron ward, "which abound with ranks of back-to-back houses, enclosed courts, privies under dwellings, unpaved and undrained streets, cellar apartments, and barrack lodgings."

Those who pass through the destructive ordeal of childhood and enter upon adult years, are still surrounded by morbid influences, and subject to privation of proper air, food, clothing and protection; and under the weight of these causes, they are open to attacks of diseases, which lessen the average of life, and send them to premature graves.

From the several tables in Mr. Chadwick's Sanitary Report we find, that in nine different towns and unions, the average life of the families, including parents and children of the most favoured classes, was 44 years, and that of the poor was only 25 years. In some towns there was still greater discrepancy. In Bethnal Green, the favoured lived 45 years, and the poor 16 years. In Liverpool these classes lived respectively 35 and 15 years. In Preston 55.42 per cent. of the poor, and only 19.59 per cent. of the prosperous, died under five years of age. In the town of Preston, 34.8 per cent. died under five years of age, in those streets which are stated to be "well-conditioned," and 70.6 in those which are called "ill-conditioned." But Mr. Clay says in his report: "There is in 'the lowest deep a lower deep,' and in districts of the worst kind there are certain streets and courts the worst of the districts. In these the mortality under five years was 73.3 per cent., and one death in every 19 persons, while in the whole town of Preston, there was only one death for every 29 persons.

The deaths in the worst wards of Liverpool were 1 in 23.56 and in the best wards 1 in 41.62. In Chorlton-upon-Medlock, they ranged from 1.95 per cent. in the best class of houses of the best streets, to 4 per cent. in the worst class of houses of the worst streets.

In the best drained and ventilated and highest positions of York the deaths were 1 in 54.32, and in the worst and lowest parishes of the same city 1 in 34.15.

In the highest, and best built and drained districts of Nottingham, the deaths are 1 in 50, and in the worst 1 in 22. And the average age ranges from 40 years in the most favoured districts to 11 years in one district,

where the houses are built back to back, with only one room to a family and this crowded to excess.

We find the greatest amount of sickness and the highest rate of mortality in the most densely crowded districts. Taking a large view, among 3,559,333 inhabitants of the rural districts of England, with a square mile to every 206 persons, the annual deaths were 1 for every 54.91—while among 3,759,062 inhabitants of the town and city districts, with a square mile for every 50.45 persons, the deaths were 1 in 38.16. That is, the mortality of the towns as compared with the country was as 55.91 to 38.16, or 45 per cent. greater; as for every 100 that die in a definite number of people in the country, 145 will die in the town.

It is an important question to determine how much more life is worth in the country than in the towns. The reports of the health commissioners now before us, and the reports of the Registrar-General afford much light on this matter. The statements in the preceding paragraphs show, that death is more frequent in the dense population of cities than in the sparse population of the country.

The mortality of the city falls first with a peculiar force upon infancy and childhood, and then upon manhood in its years of action. As there is a comparative increase of mortality in the early and the middle stage, there must of course be a comparative decrease of death of the aged—not because the old enjoy a greater tenacity of life in the city than in the country, but because there are fewer of them to die in the towns. On comparing the early and late mortality of some of the cities with that of some of the country districts, we find it to be in favour of the rural population.

The rural part of Surrey contains a population of 229,733. Liverpool has 223,434, yet in 1841, the deaths in this portion of Surrey were 4256 and in Liverpool 7556, being an excess of more than 3500 deaths in the latter place.

The following table, taken from the Registrar-General's Fifth Report, p. 33, shows the comparative progress of life in these two districts.

Of 100,000 children born there die

	In 10 years.	In 50 years.	In 70 years.	Mean length of life.
Surrey,	24,577	47,940	71,962	45
Liverpool,	51,789	74,122	92,627	26

A comparison of the mortality of near four millions of population in the rural districts with the mortality of a similar amount of people in cities, shows a similar difference in the value of life. "The density of the population of the country districts was to that of the town districts as 10 to 2.45, and the deaths as 100 to 146." In the former 20 per cent., and in the latter 9 per cent. survived their seventieth year.

There is a similar discrepancy in the "civic and rural districts" of Ireland. The expectation of life being at birth 24 years in the former and 30 in the latter.

The same difference is shown in the mortality of cities of different degrees of density of population. The following table, taken from the reports now under review, shows this matter very clearly.

	Population to square mile of builded area.	Deaths 1 in	Average age at death.	Number of Deaths in every 1000.	
				Under 5.	Over 70.
London,	50,000	37.38	26½ years.*	408	111
Birmingham,	40,000	36.79		482	88
Leeds,	87,256	36.73	21 "	480	79
Manchester,	100,000	29.64	20 "	510	60
Liverpool,	138,224	28.75	17 "	528	54

The relative mortality of these towns corresponds very nearly with their relative densities of population.

Some portions of these towns are more densely inhabited than others, and in some districts, "the inhabitants are poked together," and crowded beyond ordinary conception of comfort or possibility of health. In a small part of London, the inhabitants are crowded in a proportion of 243,000 to a square mile, which Mr. Tarr thought "the greatest density attained in the heart of English cities." But in Liverpool 12,000 people live on a surface of 105,000 square yards, which is in the proportion of 460,000 to the mile.

This packing of people is nearly equaled by one example in Boston, Massachusetts, where, "in the Broad street section, containing 3131 inhabitants, the average number of persons per house was 37, and each individual had only 9 square yards of room on the ground," which is 441,542 to the square mile. These are the abodes of the poorer Irish, who are more accustomed to close quarters than the Americans generally are.

We have no precise data to determine the mortality of these very crowded districts, but judging by those of a similar character from which we have mortuary reports, we have no reason to doubt, that sickness and death prevail there in the inverse ratio of their space of earth to stand and live upon.

The average age of those who were buried in the Catholic Cemetery of Boston was 13 years and 5 months, while that of all who died in the same city was 22 years and 8½ months. Most of those who were buried in the Catholic Cemetery were from the Broad street section, yet others were also buried with them.

Comparing the more dense with the less dense parts of the same cities, we find a similar difference of mortality.

In 5 wards of York, with an average of 84 inhabitants to the acre, the deaths were 1 in 53: and in 13 other wards, with 248 to the acre, there is 1 death to every 35 inhabitants.

In 35 districts of Nottingham, with 187 inhabitants to the acre, the average age of all who died was 26.6 years: and in 32 other districts, with 316 to the acre, the average age at death, was 19.8 years.

Some parts of Liverpool present the greatest density of population found in Great Britain; and though the whole town is bad enough for health, yet even here are different degrees of evil, of crowding and of mortality. In four wards, where each inhabitant has only 18½ yards of ground, the deaths are one in 28.31, while in ten other wards, where each person has 239 yards of ground, the deaths are only 1 in 41.

The whole of England had, in 1841, a population of 299 to the square mile. These are about equally divided between the rural districts and the towns.

* Including only Kensington, Strand, Whitechapel and Bethnal Green Unions—and not the healthiest districts.

The fact, that the mortality has increased with the density of population is corroborated by a similar increase with an increasing population, in the same towns or districts, as is seen in the following table.

In the town of Preston:

Years.	Population.	Deaths to population.	Average age at death.	Per cent. of deaths.	
				Under 5.	Over 5.
1791	8,000	1 in 45	23.609	44.943	55.057
1811	17,065	1 in 48	19.998	51.315	48.685
1821	24,575		18.942	56.573	43.427
1841	50,131	1 in 33	19.51	53.36	46.64

Two parishes in York, whose population doubled in 25 years, increase the proportion of infant mortality from 32 per cent. to 53 per cent., and diminished the mean age at death from 34.9 years to 27 years in course of the same period.

The average age at death in Boston, Mass., underwent a similar diminution, corresponding with the increase of population during 30 years.

1811 to 1821, Population ranging from 33,787 to 43,277, Average age 27.25.

1831 to 1841, " " " 61,392 to 93,383, " " 22.72.

The working of the same law of the influence of density of population is shown by an opposite fact of decreasing population. In two parishes of York, where "old buildings were taken down, the streets widened, and the population diminished," the mean age at death was increased from 26.2 years during the 5 years ending in 1821, to 36.6 years during the period ending in 1841: and the infant mortality diminished from 45.9 per cent. to 30.4 per cent. of the whole number of deaths in the same time.

The crowded state of many of the dwellings of the poor is injurious to the morals as well as the health of the inhabitants. The proper separation of the sexes cannot be obtained in a habitation, which affords only a single room for a whole family. A large portion of the labourers in some cities have only one room for every purpose—eating, sitting, dressing, washing and sleeping, of the whole family—male and female—children and adults. Here, without any dividing wall, the married and the unmarried, the grown up sons and daughters, as well as those of more tender years, must sleep. Worse than even this, in some families, the married and the unmarried adults of both sexes sleep in the same bed. Numerous instances are stated of these facts and of the destructive consequences to decency, delicacy and purity of sentiment and of habit, and of the awful corruption that sometimes follows. Mr. Wood says, he had above 100 cases of adult persons of different sexes sleeping in the same room. In one room were two beds; a man, his wife and child slept in one of these, and two unmarried females in the other. Mr. Wood, one of the reporters, says, he met with cases of similar character, and several where "a mother was sleeping with her grown up son." "I found in a cellar in Liverpool, a mother and her grown up daughter sleeping on a bed in one corner, and in the other corner, three sailors had their bed." A man and his wife slept in one bed, two grown up females in another, and two young men, unmarried, in a third bed, all in the same room. Several instances were found of a man, his wife and his wife's adult sister sleeping in the same bed.

In many of the lodging houses, there is no pretension to separation of the sexes. These often sleep promiscuously in the same room, and some-

times in the same bed. Some of these lodgers are prostitutes, and others become so, by this indecent herding together, yet the greater part have not yet become so degraded.

When a labourer marries, he takes a single room for himself and his wife. This seems then sufficient for the two; and, for some time afterward, this seems to be large enough for them and their young children. As these children grow up gradually they are accustomed to dress and sleep together and feel no need or propriety of separation of the sexes, and the increased cost of maintaining the enlarged family, without a corresponding increase of income, prevents the father from hiring additional rooms for separate lodgings. Consequently parents, and sons, and daughters, all grown up, are frequently found lodging in the same room.

All that natural delicacy which is maintained by the separation of the sexes is here lost, and scenes are described which appear shocking to the common sense, but which, from their familiarity, do not seem to be offensive to those who are accustomed to no other. One witness states, that, in one of his visits, in a room where a young woman was sitting, a young man took his clean shirt and "very deliberately threw off the shirt he had on, and after warming the clean one, put it on." This was necessary, for when they had no other place for dressing or retiring, this work must be done in each other's presence.

The moral pollution, the deep degradation of feeling and life, that grow out of the want of separate lodging rooms, and of separate beds, are reported as being frequent. A prostitute told one of these witnesses, that her first step in wrong was from sleeping in the same bed with her married sister and her husband.

Dr. Smith states, that he had "seen a young man of 20 years, sleeping in the same bed with his sister, a young woman of 16 or 17 years." "That incestuous intercourse takes place under these circumstances, there is too much reason to believe." Dr. Aldis gives the case of a young woman, who became insane, in consequence of incestuous intercourse with her own brother. Worse than this, was a case of a girl 16 years old in Leeds who became pregnant by her own father, with whom she slept.

We might quote, from these reports, more of these sickening details to show the corrupting influence of the crowded dwellings upon both sexes: but here are enough for our present purposes. Those who wish to pursue the matter further can find sufficient opportunity in the health of towns and sanitary reports.

"A clean, fresh and well ordered house exercises over its inmates a moral no less than a physical influence, and has a direct tendency to make the members of the family sober, peaceable and considerate of the feelings and habits of each other." Whereas, a filthy, squalid, unwholesome dwelling, in which none of the decencies common to society, can be observed, tend to make every dweller in such hovels regardless of the feelings and happiness of each other, selfish and sensual."

This is the testimony of Dr. Smith from long and extensive observation of the moral as well as the physical health of the poor. He says still farther, that "in the most wretched of the hovels in these neglected districts" not only "the pickpockets, the thieves, the degraded and the profligate," "but also, in general, are great criminals, violent and reckless men," born and nurtured.

There seems to be a natural and habitual connection between filth and moral pollution, and also between outward neatness and inward purity. In many courts and in some streets and lanes, there are no private privies, all

are public and standing out in the open court or passage way in front of the houses, and some of these have no doors. The residents of these courts and lanes—males and females—are obliged to resort to these public and open houses, exposed while going in and coming out, and sometimes while there, to the gaze of the people in the dwellings, the passengers and loungers in the street. The vaults are often uncovered in some places, and the excrementitious deposit exposed to the eye as much as the pavement of the street, and some are so rarely cleansed, that the foul gathering overflows and covers the surface of the neighbouring ground.

That instinctive delicacy, which impels both male and female to hide themselves, when they perform their natural offices, is never developed in many of those who are born in these neglected streets or courts, and are always accustomed to this *cloacal* publicity; and it is almost inevitably blunted or extinguished in others whose change of circumstances and location compel them to give up their former habits of privacy, and resort to the public privy.

Some resist this outrage upon decency, and avoid the loathed exposure as long as possible. They consequently suffer from their alvine and urinal retentions. The witnesses testify to very great suffering and derangement of health, in females especially, from this compulsory neglect of the habitual discharges. In many of these places, the all-conquering power and contagion of filth rarely fails in its struggle with habits of neatness, and feelings of delicacy. The heart becomes more foul and the mind more sordid with its corrupting influence. Dr. Smith says he saw a neat woman who had just moved into a dirty court, where "a stream of abomination, the filth from the houses," was flowing close to her door. She said, she had swept it away from her door "five times this very day," but "it is of no use to try to keep it clean." She was thus beginning to yield in despair, and "if she remains there, she must necessarily sink into the state of squalor and filth of her neighbours."

Some women who had been especially neat and tidy before marriage, when they had opportunity to practise their habits of neatness and order, became sluttish and slatternly after marriage and removal to some of these hovels, where filth and disorder must reign.

Everything that lessens the beauty and charm of home, lessens its attractions for the father, who may go elsewhere. The foul air within these houses, the noisome stench from the yards and courts without, the filthy aspect of the floors, the walls and the furniture, the unwashed children and the sluttish wife, and the ill health and fretfulness in consequence, together with the "domestic jars and disputes," all tend to render home uninviting to the weary labourer, and to send him abroad for peace and rest. The houses of his associates are no better, the lanes and courts are also offensive, the ale-house, with its temptations, is open to him; therefore, "the wretched state of his home induces a man to spend his money on selfish gratifications." The stimulation of ale and spirits is sought by both father and mother, to obviate the depressing effects of the foul air, and the general filthiness of their abodes, and hence intemperance accompanies the want of cleanliness.

Undoubtedly, a supply of water is a matter of prime necessity for the people. For domestic purposes of cooking, washing, and bathing, the cleansing of persons, clothing, and houses, water must be supplied constantly and freely. The average quantity necessary for each individual is estimated variously from twelve to twenty gallons a day, by the different

witnesses, whose reports are in these volumes. The highest estimate is the best for health and convenience. Besides the want of water for household and personal use, much is wanted for cleansing streets, washing out the drains, sewers, &c. This would require much more than even the family uses.

So large a quantity as this cannot be obtained for the dense population of a city, from the ground on which they live, neither natural springs nor artificial wells can supply sufficient for them, and in those districts which are the most densely crowded, where, as in some parts of Liverpool, the whole surface of ground, including both the uncovered street and the covered house lot, allows less than nine square yards to each one of the inhabitants, there cannot be enough of water from the rains above, and the springs under the earth, to supply their necessary wants. As this quantity cannot be obtained on the spot for the residents of a city, it must be obtained from some other source, a running stream, a pond, a lake. For many cities, this is to be found in the immediate vicinity, or within the city itself; as at London, Nottingham, Philadelphia, &c.; for other places it is brought by aqueducts from considerable or remote distances, as at Boston, New York, &c.

Circulars were sent by the Health of Town Commissioners, to fifty towns and cities, inquiring into the supply of water to their inhabitants. "Upon the examination of the statements and answers" from the fifty towns, "it appears that only in six instances could the arrangements and supplies be deemed, in any comprehensive sense, good; while in thirteen they appear to be indifferent, and in thirty-one so deficient as to be pronounced bad, and so far as yet examined, frequently inferior in purity."

In many cities, the water is sent along the principal streets, and those inhabited by the wealthy and the prosperous; while none is sent to the narrow streets, the alleys, the lanes, and the courts, where the poorer classes dwell. The laws provide no better supply for the poor, and the usages do not meet the requirements of the law, and "they all stop short of a most important point, namely, measures for carrying supplies, under an economical and properly regulated system, into the habitations of the poorer consumers."

There are some exceptions to the above statement; in some towns, the water pipes are carried into the alleys and courts, but rarely is the water carried into the houses. Most of the poor, who have water from water companies, receive it only in stand-pipes, or tanks in the street or court, common to many families in the neighbourhood. In many places, these stand-pipes and tanks are at considerable distance from some of the houses, and the inhabitants "are obliged to fetch the water at much cost, and inconvenience, delay, labour, and expense," which come very heavily upon the poor.

These tanks are exposed to the sun, the dust, the dirt, to the occasional deposits from careless people and children, and, consequently the water is frequently polluted and rendered unfit for healthful use.

In some towns, the water is not "kept on the pipes" during the whole time; but the supply is intermittent—during certain days or certain hours of the day. The families which are thus supplied, are compelled to draw and carry to their houses, while "the water is on," as much as will supply them, while it is off. In these cases, there arise two evils, first, crowding of the carriers around the pipes and tanks, eager to get their supply during the short period in which it is offered to them, and the frequent quar-

rels and disturbances that arise in the struggle to be the first supplied ; and secondly, the great waste of water from the provident desire of these people to be on the safe side, and obtain enough, and the practical habit of obtaining more, which must be thrown away, when the water is again offered them.

These evils, although they amount individually to little, yet appear, by the abundant evidence in the Reports, to be, on the whole, very great, and demand consideration in all plans for supplying towns with water.

From the absolute want of water, in the whole of some towns, and in the poorer districts of most towns, and the very inefficient means of supplying the poor in others, there occurs great suffering among this class of people, both in comfort and in health, while, for all the purposes of economy, convenience and health, for cooking and washing, and for personal and household cleanliness, not less than thirteen gallons a day are necessary for each individual, many of the poor cannot obtain as many quarts, and some not half as many pints.

Some use very little water in cooking, and to save it, "they put greens into the pot without washing them." Mr. Toynbee says, that he has "observed the same water, which is very filthy from having been used in washing some clothes, and again used to wash others." "Even sick children are neglected and left dirty." This surgeon says that, often, after dressing sprained ankles or bad ulcers of the legs, he finds no water to wash his hands; sometimes he can find water in others' rooms, sometimes it is there "so dirty as to be unfit for use;" and at other times, he says, "I have been obliged to go away with my hands unwashed." "The towels, having been washed in dirty water, are unfit for use."

Mr. Liddle says, "the smell of their linen, which, they tell me, is quite clean, is often offensive;" "cleanliness is entirely neglected, and their clothes and their persons remain in a most dirty state." "Habits of uncleanliness necessarily and naturally are established amidst this privation of the means of purification. The children are born in dirt, and grow up unwashed and filthy. The idea of cleanliness is strange to them; they have neither taste for, nor opportunity of, being clean." And one witness, after describing the condition and habits of some of the poor, who are scantily supplied with water, says, "such is the love of uncleanness, when once contracted, that no habit, not even drunkenness, is so difficult to eradicate."

Pure water is necessary, and an abundant supply of it is an indispensable luxury for those who are accustomed to enjoy it, but it is not so for those who have never known it, or have been long deprived of it. Their sensibilities have never been exalted above, or they are brought down to their power of gratification, and, consequently, their wants are commensurate with their supply. It is in vain, therefore, says the Sanitary Report, "to expect, in the great majority of them, that the disposition, still less the habits, will precede, or anticipate, and create the conveniences" of cleanliness. Their own personal and domestic filth and discomfort, their moral degradation and low health, consequent upon the want of water, are insufficient to cause them to demand and create a supply of this element, or to remove to places where it can be obtained.

So little do they feel this want, that many of them will not even take the trouble to go a few rods to the well or tank, and draw sufficient for comfortable and healthy use. Many of the poor are weak, necessarily so from poor food and bad air, and want of personal neatness. They are obliged to

use all their available strength in their labour, and to them, the additional exertion of drawing a pail of water is more than they have power or disposition to make.

In most of the towns, water is supplied very imperfectly, or not at all, to the districts inhabited by the poor. The main pipes are carried along the principal streets where the wealthy and the comfortable dwell. Those who can best afford the time and the strength for drawing water, or the money to pay others to draw it for them, and whose habits and tastes would compel them to obtain it, are well supplied in their houses, and often it is carried to their uppermost rooms. While those who need it for health and strength as much as the others, but whose sensibilities are not sufficiently cultivated to feel the want of it, whose habits and tastes do not require it, and whose means and strength do not permit them to obtain it, rarely have it brought to their houses, and often do not have it even in their streets or neighbourhood.

To those, who thus find hardly sufficient pure water for the necessary purposes of cooking and drinking, and not enough for ordinary and comfortable washing, baths for the whole person are out of the question. If these persons can but cleanse the face and hands, which are seen of man, it is all they have the means of doing, and all that, in their circumstances, can be expected of them. They are thus deprived of one of the necessary means of health and strength, an opportunity of maintaining a perfectly clean state of the general surface, a pure skin. Many of these consequently never bathe the parts that are out of sight. Some, from summer to summer, perhaps from infancy to old age, never wash themselves throughout. They carry upon themselves, through all this period of months or years, the accumulated excretions from within, and the gathered dirt from without, which, combining together, generate diseases of various kinds in the sufferer, and send forth effluvia foul and offensive to those who are with them. The foul air of their filthy and unventilated rooms, their impure skins, and their unwashed clothing, combine to give these people such a powerful odour, that Mr. Liddle says, "when they attend my surgery, I am always obliged to have the door open. When I am coming down stairs from the parlour, I know at the distance of a flight of stairs, whether there are any poor patients in the surgery.*

It appears from the evidence and the opinions of many witnesses, builders, architects, proprietors, physicians, agents, and engineers of water companies, that water in abundant quantities can be carried into both the courts and the dwellings of the poor, and delivered in every room, where it is needed, for an annual rent less than the usual cost of buying or fetching an insufficient quantity, or less than the value of time, that must be lost to the labourer who draws it himself for his family.

The occupants of these miserable dwellings cannot do this themselves. However much they may need a constant and abundant supply of pure water, they have neither the sensibility to feel the want of it, nor the means

* While I have been writing this article, in February, 1848, I sat in a sleigh on the leeward side of an Irish labourer, whose clothing smelt so oppressively, that I was induced to ask him where he had lived. He said that he had been living in a temporary shanty on the South Shore Rail Road, and had slept in an attic chamber with fifteen others, whose beds entirely covered the floor. The air was very foul, and there was no opportunity for ventilation. He had walked eight or nine miles that morning through the snow, facing a brisk northwest wind, and yet this had not been sufficient to remove from his person and clothing, the foul odour which they had received from the corrupted air of his lodging room.—E. J.

of obtaining it. But wherever it has been carried by the public authorities or by the water companies into their streets and courts, and by their landlords into their houses and rooms, they have become accustomed to the free use of it, and found such an improvement in the household economy, and so much greater facility in the performance of their domestic operations, such an increase of personal and domestic comfort, and so much addition to health, strength, and productive energy, that they are willing and able to pay the small additional rent, which the new outlay demands, which is stated to be not more than a penny a week in some cases, and two pence a week in others, amounting to one or two dollars a year.

Baths cannot be provided in the rooms of the poor, who are necessarily limited in their room; but they can be provided elsewhere, and at the public expense. Public baths can be established to accommodate a very large population, at so small an expense, that a very trifling fee from each one, who uses them, would make a fair remunerating return for the cost of the buildings and the apparatus, and for the expense of the maintenance of the establishment, and of procuring the water.

The public baths, which were established in Liverpool, by the corporation, in the year 1842, have been very successful, both as an investment, and as a means of public comfort. There are in this establishment, warm and cold plunge baths, and shower and vapour baths; and these have various grades of convenience and elegance of each kind. The price of these baths varies from a penny, about two cents, for the cheapest cold bath, to a shilling, about twenty-five cents, for the dearest warm and vapor baths. These baths had been open two years, at the date of the Report. During the first year there were 11,661 baths taken; and during the second year, this number was increased to 16,323; showing an increase of about forty per cent. within one year. It is very probable, that this increase still continues, for this is a matter which is not likely to go backward. If the increase has continued at the same rate until the present time, not less than 60,000 baths will be taken during this year in this establishment.

What proportion of the poor, what of the more favoured classes have availed themselves of these baths, is not stated, but as the great majority—ninety per cent. in the first year, and eighty per cent. in the second year—took the cheapest baths, at six cents, and under, it may be supposed that among these were many of the poor.

Connected with the supply of water, and the domestic comfort, and the health of the poor, is the establishment of wash-houses for their use. For all of this class, and certainly for those who do not have water brought to their rooms, the burden and inconvenience of washing their clothes are very heavy. Their single rooms, often crowded, close, and filthy, allow no opportunity for the additional apparatus of tubs, &c., and their limited room, with air already saturated with moisture, seldom even imperfectly, and never perfectly ventilated, prevents their drying these clothes within doors; their want of private yards, allows them no means of drying on their own premises, and the narrow and dirty streets and courts, are equally unfavourable to drying their clothes on the public grounds.

To remedy this difficulty, public wash-houses are established for the poor. These are provided with water, tubs, boilers, fuel, &c., for washing, and convenient places and apparatus for drying. In Liverpool, "each woman pays one penny, (about two cents,) for a length of time not exceeding six hours, for the use of tubs, water, and having her clothes dried." "These wash-houses are intended for the poor, and preference is given,

1st, to those who occupy a cellar or a single room only; and 2d, to those with the largest families and the smallest means of living."

Such establishments as these do much towards increasing personal and domestic neatness, and improving the health and comfort of those who are allowed to use them.

Very few of these English towns are supplied with water by their own corporations. Those, which are supplied at all, receive it from companies or individuals. In some towns, there are more companies than one, which are allowed to be established, under the idea, that competition of rival companies will give a better and a cheaper supply of water than can be obtained from one, that should monopolize the whole town. In some towns, the pipes of the various companies run along the same streets, and supply customers who live side by side, and often produce great confusion and inconvenience, by their frequently digging up the streets for repairs, &c. In St. Martin's Lane, London, five gas pipes, three water pipes, and a sewer all run along together, and almost fill the ground under the pavement. The charters of some of the water companies require them to send their pipes along the main thoroughfares and the principal streets; few are required to send water to the by-lanes and the obscure courts; and none are required to send it into the houses of the poor.

The rivalry of companies has not proved to be a sufficient guaranty for their effectual supply of the people of all classes, and indeed, nothing short of the power and comprehensiveness of the corporation, as in Philadelphia, New York, and Boston, can accomplish all that is needed for the supply of water to the whole population.

The supply of water should be connected with the drainage, especially the house drainage. Water is necessary to aid in carrying away all the house offal through the small pipes to the sewers; and it is equally necessary to wash away the offal of the houses and that of the streets through the sewers to the main outlets. For this purpose of aiding the drainage and sewerage, as much water is needed as for all domestic purposes, and perhaps more.

This would be an additional reason for the whole water supply being in the hands and under the direction of the city or town corporation. And most of those, whose evidence is here given, are of opinion, that a single superintending officer or board of officers, should have the charge of both these matters, and also of the paving and the grading of the streets.

The great prevalence of disease and death among the poor, seem to be caused by the difference of condition, and by circumstances which may be removed. The eye is offended, the nostrils disgusted, and oftentimes the skin is polluted by the street and the dwellings, the clothing and the persons, the air and the water, and the food of the poor, and one is involuntarily and almost irresistibly led to believe that there must be disease and death more frequently than among those whose quarters and abodes, whose persons and habits are more agreeable to the senses.

Dr. Smith says that, "no one who lives long in or near a malarial district, is ever, for a single hour, free from some disease of the digestive organs." Fever first breaks out invariably "in the foul places."

Mr. Toynbee says "defective ventilation appears to me to be the principal cause of the serofulous affection, which abounds to an enormous extent among our (dispensary) patients." And also "of all the disenses of the joints which we so frequently meet with, as well as the diseases of the skin." "Hydrocephalus arises in abundance in these rooms." "The eye

and the ear are injuriously affected." Proof is brought from Baudelocque on *maladies scrofuleuses*, to show, that living in foul air engenders scrofula. "In crowded rooms the diseases are excessively difficult to manage." "In the less crowded rooms, and more cleanly habitations, the mortality is not so great; diseases are less severe, last a shorter time, and do not leave behind them the same shocking effects on the system."

Measles are more abundant and fatal in the bad districts and habitations. Dr. Aldis speaks of "the depressed and low condition of health in which these people are always found," and says that, "the small-pox has fallen like the plague on some of the worst conditioned spots." Dr. Duncan says, "fever is the characteristic disease of the poor of Liverpool, and is caused by the crowded state of districts and rooms, without ventilation." Mr. Holland says, "that in Charlton-upon-Medlock, in a family of five individuals, there will be on an average, about fifty days a year more sickness *due to the insalubrity of the dwellings.*"

Sickness is not only more frequent and severe among the poor, and in their ill paved districts, but it is more fatal, consequently the mortality is higher, and the average of life is shorter than in the better districts. In Charlton-upon-Medlock, the rate of mortality was, in the first class of houses, on the first class of streets, 1 in 51, and, in the worst houses on the worst streets, it was 1 in 25, being little more than double the number of deaths in proportion to the living.

In York, 1 in 47½ died in the best, and 1 in 28·82 in the worst drained and ventilated parishes. The average age in the former was 35½ years, and in the latter 22½ years.

In Leicester the average was 25½ years in drained districts, and 17 years in the undrained districts.

In Preston, in 1840, 1 in 14·6 died in the worst streets, and only 1 in 29 through the whole town.

The rate of mortality differed in Liverpool from 1 in 41 in the best, to 1 in 23 in the worst wards; that is, for every 100 that die in the one, 177 die in the other.

We might quote numerous other instances from these reports, to show the excess of sickness and mortality among the poor, and in the ill-conditioned districts and dwellings, above that, among the more favoured inhabitants of the better districts; but here are enough to convince the most skeptical, that disease and death prevail more in the neglected than in the well cleaned streets and houses.

And if still farther proof were wanting, it is easy to show the improvement of health and increase of life, that have followed from improvements in the streets and dwellings.

Some narrow streets have been widened, some closed courts opened, some foul and undrained districts cleaned and drained, some houses have been ventilated; and though these improvements have been limited and partial, yet they have been so constantly followed by improved health and diminished mortality of the inhabitants, as to leave no doubt, that their former condition was the cause of disease and death. Dr. Laycock says, "the health of the city [York] gradually improved concurrently with the improved sewerage and drainage." Many of the streets were formerly very narrow, and the houses built with projecting stories, so that their upper parts nearly met from opposite sides of the street. These houses were pulled down, and the streets widened, so that the sun and air had free access for ventilation; sewers were also established, and the streets were paved. The

consequence was that the mortality, in course of 100 years, diminished from 46 to 23 per 1000 of the living.

Dr. Smith states, that in one large house inhabited by four families, fever was for a long time prevalent, "that one set of people had gone in, become ill with fever, and died; that another set of people had gone in, and been in like manner, attacked with fever and died; and this had occurred several times, when the magistrate gave the house in charge to a medical officer, "who caused it to be whitewashed, fumigated, and thoroughly cleansed." "Since this was done the rooms have been occupied by a fresh set of people, but no case of fever has occurred.—*First Report of Commissioners.*

Dr. Duncan states, that the number of fever cases in a crowded district of Liverpool, was diminished in consequence of opening a wide street through it. Mr. Holland says, that in Charlton-upon-Medlock, "the diminution in the rate of mortality has been nearly 20 per cent. in the streets that have been improved."

From a comparison of the mortality in twenty streets of Manchester before and after improvements, "it was ascertained that the deaths immediately subsequent to the drainage and paving of the streets, were diminished more than 20 per centum out of every 110."

An instance is quoted of a crowded and filthy district, that had been long subject to very abundant cases of fever. In apprehension of the cholera, this place was thoroughly cleansed, the houses were cleaned and whitewashed, and the streets and courts were drained and swept.

Fever immediately disappeared, and the place continued healthy until the fear of the cholera passed away, and the place became filthy again, and then the fever returned and prevailed as before.

In the Sanitary Report on the labouring classes, there are many cases quoted of the improvement of health following upon drainage, both in Great Britain and in France. The deaths in the Isle of Ely were 1 in 31 before drainage, and 1 in 47 afterwards. Typhus and intermittent fevers formerly prevailed in the parishes of Knighton, Isore, and Bodswell, but ceased after the marshes were drained.

"The most densely crowded and filthiest locality" in London, was improved by making a common sewer through it. Dr. Laycock compares Rufforth with Accombe. Rufforth is low and badly drained, "and has a wide stagnant ditch passing through." "Accombe is situated on an eminence," and is well drained. In Rufforth, the deaths from epidemics, are 1 in 69, and from all causes, 1 in 34, of its inhabitants, and the average age at death is 28 years. In Accombe, the deaths from epidemics are 1 in 258, and from all causes 1 in 41, of the living, and the average age is 35½ years.

The effect of ventilation in improving health, is abundantly proved. A crowded place, called "The Barracks," in Glasgow, was inhabited by 500 persons, "every room contained one family." "Fever constantly prevailed." The proprietor fixed to each room a tin tube, two inches in diameter, which led "to the chimney of the factory furnace." "During the ensuing eight years fever was scarcely known in the place." "A greater part of the great school at Norwood fell into ill health, and many died, from imperfect ventilation of the houses." But when this was remedied, "the children recovered their health." "And 1100 children are now maintained in good health, where 600 before ventilation were scrofulous and sickly."

It seems to be the general opinion, that a large part of the sickness incident to the poor, the dwellers in these crowded districts and houses, in these filthy and undrained streets, might be prevented, and, consequently, the mortality diminished. Mr. Toynbee says, the sickness and mortality might be reduced one-third immediately by proper measures. Dr. Guy estimates the possible annual saving of deaths from consumption alone "at little less than 5000."

Mr. Holland says, if the worst streets were put into good condition, the rate of mortality would fall twenty-five per cent. or more.

Mr. Coulthart says, that the introduction of proper sanitary measures into Ashton-under-Lyne, would prevent a third of the cases of sickness, and one-third of the deaths of that town. Mr. Hawksley says, that "the loss of life in Nottingham from causes, principally of a physical, and undoubtedly of a removable nature, would appear to average not less than 9 or 10 years to each individual."

One of the most melancholy consequences of the privations of the poor, is a want of sensibility, and a lively perception of their wants. This is shown "in the quiet and unresisting manner in which they submit to their lot." Dr. Smith says, "they make no effort to get into happier circumstances; their dulness and apathy indicate an equal degree of mental as of physical paralysis." In proper degree, this is the virtue of contentment, which enjoys the gifts of Providence, however small, without complaining that they are no greater. But this degenerates into insensibility, and even into a sullen indifference, that does not care to do, or be any better, and prevents all attempts at moral or physical improvement. Dr. Smith says, that "amidst the greatest destitution and want of domestic comfort, I have never heard, during the course of twelve years' practice, a complaint of inconvenient accommodation."

The children were born and bred in crowded rooms, of narrow streets; they were cradled in filth, and breathed a corrupted and noisome atmosphere; they were ever accustomed to indecent exposure, both of person and of offensive matters; they have never known the comfort or the use of fresh air and pure water in sufficient quantities, nor have they felt the want of them; they have had no means of cultivating cleanliness of person or clothing, or house, and no opportunity of indulging in the personal privacy, which instinct would seem to require; that delicacy and purity which seem natural to the more favoured, is never developed, or it is early extinguished, in these wretched poor, so that they feel no wrong in their domestic habits. Some of the girls, who slept in the room with men, when spoken to by the physician, who saw them there, did not understand that they had degraded themselves by so doing; and even grown young women who slept in the same bed with their father, or brother, or brother-in-law, seemed to feel no impropriety in so doing.

When men and women have been accustomed from birth to no better condition, and no greater enjoyment, they marry and raise up children in the same privation and insensibility. They have no hope, and almost no desire, to leave their children in better condition than they themselves have endured.

It is all in vain to expect, that improvement will arise out of the wants of those that need them most, that these people will either feel the desire and demand a better condition of things, or that they will have the moral or physical power to obtain it. All this must come from abroad, from the philanthropist, the political economist, and the legislative authority.

Besides the improvement of the external condition of the poor, of their streets and houses, something must be done for themselves, to elevate their character, refine their sensibilities, to give them more mental power to understand, and more moral energy to accomplish the work of improvement.

The education of the people must be coincident with draining the streets and purification of the houses.

The committee of New Castle, speaking of the most degraded and wretched of the poor, say: "After all, a long experience of the classes that generally inhabit these dreadful places, forces upon us the conviction, that it is to poverty, ignorance, vicious habits, and neglect, that the evils traced there may be generally ascribed; that such places are not bad, necessarily bad, but that they are made infinitely worse by the causes just alluded to." In reference to the worst classes of houses and the lowest inhabitants that dwell in them, the same committee state: "If such places exist not, they will make them. Place them in an airy habitation, and they will turn it into a noisome hovel. If they have drains, they will cause them to be obstructed; if free ventilation, they will close it up; if the clearest sunshine, they will shut it out by negligence and filth. Buckingham street, Peel street, Wall Knoll, Quay side, and Loudgate, offer ample proof of this." "The inhabitants of these places have done much, but the builders of these tenements more. To the former, may be ascribed much of the defect of ventilation and internal dirt, to the latter the want of drainage, and that mass of filth that constitutes the streets." Here then is need of education both of the builder and the tenant, in order to produce a better state of things and an improvement of the condition and health of the poor.

The poverty of the poor includes more than a mere want of worldly substance. They suffer from want of health and physical strength, from defect of intelligence, of education, and of mental discipline, and from want of encouragement of their associates to improve their condition, and from lack of ambition to elevate themselves, and taste to enjoy more comfortable and more agreeable circumstances.

Their low physical, moral and mental condition prevents their acquiring property which come to those who have higher health and more mental energy; and their external poverty deprives them of the means of health and education. Personal character and power are intimately connected with outward prosperity and adversity. The poverty of the poor and the wealth of the prosperous are self-sustaining, for "whosoever hath to him shall be given, and he shall have abundance; but whosoever hath not, from him shall be taken, even that he hath."

From these reports we are led to draw several inferences, in respect to cities.

1st. The districts inhabited by the poor and the labouring classes, are imperfectly drained and supplied with water.

2d. Their narrow streets and alleys, and closed courts admit little circulation of pure air abroad, and their small rooms and small windows allow very little ventilation within.

3d. Their air is foul abroad and corrupt within.

4th. Sickness, and especially fever, scrofula, and diseases of the digestive organs, are more prevalent and less manageable in these abodes than elsewhere.

5th. More children die, and fewer adults survive the usual period of working life, and die in old age, and the average longevity is less in cities than in the open country.

6th. Sickness and mortality are increased with the density of population.

7th. Sickness and mortality prevail much more among the poor in their ill-conditioned districts and houses, than elsewhere.

8th. The life of the poor is shorter than that of the rich.

9th. The productive power of the labouring people is diminished by their feeble and short life.

10th. The morals of the inhabitants of these bad districts are lower than in a better districts.

11th. The sensibilities of the poor are blunted, so that they neither seem to feel the degradation and pain of their condition, nor have hope or courage to relieve themselves.

12. Very much of the sickness and mortality of the poor and of the prosperous is intimately connected with difference of external and internal condition, and is justly referable to removable and preventable causes.

13th. The poor having neither the will nor the power to remove these causes, it is incumbent on the public authority to do it for them, and so to regulate the streets, courts, and alleys, the drainage, sewerage, and paving, the supply of water and ventilation, that their districts and houses shall in these respects, be as healthful as those in the better parts of the city.

In view of the whole of the facts developed by this sanitary commission, and of the conclusions which are naturally drawn from them, the commissioners advise, that legislative measures be adopted for the introduction and maintenance of house drainage, sewerage, paving and cleansing, and supply of water for public and private purposes, and the adoption of other means for promoting the health of the inhabitants of all the towns and populous districts.

For this purpose they propose the following series of recommendations, which we condense from their second report.

1st. That a local administrative body, appointed for the purpose, have special charge of all these sanitary works, under the supervision of the crown.

2d. That in every city and town, a survey be made, and a plan be drawn, by a competent engineer, in reference to a uniform system of drainage, &c.

3d. That the area of drainage of every town and suburb, or collection of towns like the metropolis, or Manchester and Salford, be defined and enlarged from time to time by the crown.

4th. That the local administrative body appoint surveyors, and other officers, to carry out the sanitary measures.

5th. That the crown direct some person to examine the sanitary condition of any town, wherever there be reason to suspect any imperfection in drainage, sewerage, cleaning, paving, &c., and compel a reform if needed.

6th. That the drainage of the entire area of one locality be under a single authority.

7th. That if mill-dams obstruct the drainage of the lands, or are injurious to the health of the people, the local authority have power to purchase them.

8th. That main and branch sewers and house drains be entrusted to one board.

9th. That the cost of these sewers and drains be assessed upon the landlord, where the houses do not rent for more than 10l., (about \$50,) or where the rent is collected oftener than once a quarter.

10th. That in other cases, the cost of sewers and drains be assessed upon the occupiers of the houses, and this be paid by instalments through a series of years.

11th. That the annual proportion of this cost to be levied may be limited; but the public authority may borrow money for immediate use.

12th. That the grading and paving streets, courts, and alleys be under the same authority, and paid for in the same way as the drainage.

13th. That the same authority cleanse all streets and privies, and have right to all dust, ashes, street refuse, night soil, &c.

14th. That collections of dung, offal, &c., be declared legal nuisances, and be removed.

15th. That the black smoke from furnaces and steam-engines in towns, be prevented.

16th. That if any inhabitants are injuriously affected by noxious exhalations from any factory, the local authorities abate the evil.

17th. That the same authority supply water to all the streets and families sufficient for domestic use, cleansing streets, scouring sewers and drains, and for the extinction of fires.

18th. That the water companies supply this water on equitable terms, and the local authority be empowered to purchase their property, if willing to sell. And that all new companies be required to sell, whenever the towns may desire to purchase.

19th. That as soon as pipes are laid down, the water rate be charged on all dwelling houses, that can be benefited by the supply, in the same manner as the sewer rate.

20th. That ample supply of water be furnished to public baths and wash houses, for the poor.

21st. That water be constantly kept on high pressure in the main pipes, and fire plugs be inserted in the pipes, at short intervals, for the extinction of fires.

22d. That the local authority be empowered to raise money, to pay for the property and the cost of opening thoroughfares and widening streets, courts and alleys, through crowded districts, for the purpose of external ventilation.

23d. That courts and alleys be built not less than twenty feet wide, and the width of these be in proportion to the height of the houses, and that the courts have an uncovered opening, not less than ten feet wide, into the public street.

24th. That, after a limited period, cellars be not used as dwellings, unless of a fixed size and provided with a fire-place, windows sufficient, and made to open, with an open space in front, and unless the cellar be perfectly drained.

25th. That all new houses be provided with necessaries, for the inmates.

26th. That all houses for public assemblage, and especially school-houses, be properly ventilated.

27th. That the local authority require the landlord to cleanse any house or premises, which are so filthy as to endanger the health of the occupants or the public, or in which exists some infectious disorders, or do this at the landlord's expense if he neglect to obey.

28th. That this authority regulate lodging houses.

29th. That they may appoint a medical officer to inspect and report periodically upon the sanitary condition of the towns, and ascertain the causes of disease and mortality.

30th. That this authority may raise money necessary for the management and care of public walks.

We have been thus minute in our description of the present condition of some parts of some of the cities of England, because we desire that our countrymen should see and profit by foreign experience. So far as we can learn from reports, the cities of the continent are no better. They too have their narrow streets, and filthy and undrained districts, crowded houses and unhealthy and short lived population.

These are the cities of the old world. In some of them these evils have been the growth of centuries; and in all, they have had their beginning when their effect on health and life was not known or considered.

They are so firmly established in the structure of these towns, so thoroughly incorporated in the organization of society, so intimately interwoven with the domestic condition, the character and habits of the people, that it must require ages longer to eradicate them completely.

We had intended to enter into an examination of our American cities, and see how far they have fallen into, or avoided the evils which are manifested in their older sisters, and also to consider what system should be adopted, and what legislation required to prevent them from becoming, in any of their parts, the nurseries of disease and death, like some of the older towns of Europe. But having already exceeded our proposed limits, we must defer the consideration of the present and prospective sanitary condition of the American cities, and the effect of due legislative action upon them, to a future number of the Journal.

E. J.

ART. XIV.—*A Treatise on the Structure, Diseases, and Injuries of the Blood-vessels, with Statistical Deductions; being the Essay to which the Jacksonian Prize, for the year 1844, was awarded by the Royal College of Surgeons of England. With numerous additions.* By EAWARA CRISP, M. R. C. S., Member of the Council of the Pathological and Medical Societies of London, &c. &c. John Churchill, London, 1847. 1 vol., 8vo., pp. 354, with Plates.

SOME thirty-six years have now elapsed since the College of Surgeons of England, awarded the Jacksonian Prize to Mr. Joseph Hodgson, for his invaluable essay on the diseases of the blood-vessels, and notwithstanding the great additions which, during this period, have been made to our knowledge on this subject, until the publication of the volume before us, no complete treatise had appeared.

The council of the college, doubtless deeming it a fit time for taking a retrospective view of what has been accomplished in this branch of pathology, selected as the subject of the Jacksonian Prize for 1844, "The Structure and Diseases of the Larger Blood-vessels." Mr. Crisp proved the victor in a contest which has often enlisted some of the most learned of the profession in Great Britain, and we feel persuaded that no one will rise from the perusal of his essay without being satisfied that in this instance at least, the prize has been not unworthily bestowed. Coming to us too, as it does, stamped with the seal of approbation of that renowned body, it presents strong claims to our attention.